

Amendments to the Specification:

Please replace the Abstract on page 45 with the following rewritten Abstract wherein multiple paragraphs have been deleted and one paragraph substituted therefor. A clean Abstract of the Disclosure is attached hereto.

ABSTRACT OF THE DISCLOSURE

-- A reinforcing material-having functional sheet of a sheet-like functional material including a functional powder and a binder resin and, laminated thereon, a reinforcing sheet comprising a woven fabric or a non-woven fabric, which are bonded, wherein the basis weight of the reinforcing sheet, the fiber diameter of the fiber constituting the reinforcing sheet and the functional sheet thickness are in specific ranges. A sheet-like electrode for electric double layer capacitors, which electrode comprises a sheet-like electrode of carbon fine powder and a fluorine-containing polymer resin and, laminated thereon, the reinforcing sheet, and an electric double layer capacitor having this electrode. The functional sheet has strength and no elimination of the functional material powder, and also efficiently exhibits high functional properties. The sheet electrode can efficiently prepare electric double layer capacitors having strength, remarkably low internal resistance, slight lowering of charging and discharging capabilities, excellent durability and long lifetime. --

Please replace the title with the following rewritten title:

-- FUNCTIONAL SHEET HAVING REINFORCING MATERIAL --

Please replace the paragraph beginning at page 5, line 2, with the following rewritten paragraph:

-- Therefore, the development of electric double-layer capacitors having more excellent durability, a lower internal resistance, a higher capacity and better handling properties, as compared with conventional these capacitors, has been desired conventionally.

Please replace the paragraph beginning at page 5, line 20, with the following rewritten paragraph:

--Adding the fiberization fiberization step (namely, enhancing the fiberization), the binder force of PTFE as a binder is increased, but the formed sheet-like electrodes formed lack in mass production and have inferior handling properties in use thereof because the

sheet-like electrodes have strength capable of just holding themselves and the strength of the sheet-like electrodes themselves is low. --

Please replace the paragraph beginning at page 6, line 17, with the following rewritten paragraph:

-- JP-A-2000-208373 discloses a process for ~~preparing a polar~~ preparing polar electrodes for collecting electrode-having electric double-layer capacitors, which process comprises laminating a sheet-like molded article comprised of a carbon fine powder essentially containing a carbon material capable of contributing to electrostatic capacity development and a fluorine resin as a binder, a sheet-like molded article comprised of a carbon fine powder essentially containing a carbon material having electrical conductivity imparting function and a binder, and a conductive metal foil and uniting the resulting laminate by roll pressing. --

Please replace the paragraph beginning at page 7, line 10, with the following rewritten paragraph:

-- Further, JP-A-2000-150321 and JP-A-2000-182902 disclose a process for preparing a ~~polarizable~~ polarizable electrode for electric double-layer capacitors having sufficient strength even if having a decreased thickness, which process comprises molding a mixed product of a carbon fine powder and a fluorine-containing resin into a sheet. --

Please replace the paragraph beginning at page 10, line 1, with the following rewritten paragraph:

-- In the present invention, the reinforcing sheet comprises any one of a cloth, a mesh, a non-woven fabric cloth and an ~~expand~~ expanded sheet, and has a thickness of from 0.01 to 1.0 mm. --

Please replace the paragraph beginning at page 10, line 18, with the following rewritten paragraph:

-- The present ~~invention, further, provides~~ invention further provides an electrode for electric double-layer capacitors, which electrode is one kind of reinforcing material-having functional sheets, having markedly low internal resistance, strength, free from elimination of the functional material powder such as a catalyst and the like, capable of being molded continuously, capable of molding into a long size and excellent mass production properties and also provides an electric double-layer capacitor at low ~~seat~~ cost. --

Please delete the text beginning at page 11, line 23, through to and including page 12, line 13, beginning with "Description of the Mark".

Please replace the paragraph beginning at page 14, line 22, with the following rewritten paragraph:

-- As the binder resin, conventionally known binders, which are resins capable of binding and bonding the functional powders and the ~~like each~~ like to each other, can be widely used and further any one of natural resin type binders and synthetic resin type binders may be used. Examples of the binders used herein may include fluororesins such as PTFE and the like; and olefin resins such as polyethylene, polypropylene and the like. Of these binders, the fluororesin is preferably used for molding a powdery solid into a sheet because the fluororesin is fibrillated by application with a shear force, and in the fibrillation, the resulting fibril has a fiber diameter of about from 0.01 to 0.05 μm so that it can unite and fix bindingly the functional powder having a particle diameter of not more than 800 μm mutually. In particular, ~~un-sintered~~ unsintered polytetrafluoroethylene (PTFE) resin is preferred because of having excellent weathering resistance, heat resistance and acid resistance. --

Please replace the paragraph beginning at page 16, line 12, with the following rewritten paragraph:

-- The reinforcing sheet needs to have void spaces to a certain extent because the kneadate or the sheet-like functional material in a ~~soften~~ softened state, each of which contains the functional material powder and the binder resin and is to be united by the method such as pressure bonding or the like, enters into the fibers of the reinforcing sheet and then is bonded with the reinforcing material utilizing the anchor effect. --

Please replace the paragraph beginning at page 19, line 22, with the following rewritten paragraph:

-- Next, the electrode for electric double-layer capacitors, which is one kind of reinforcing material-having functional ~~sheets~~ sheet, according to the present invention is described in detail. --

Please replace the paragraph beginning at page 20, line 11, with the following rewritten paragraph:

-- In such a ~~electrode~~ an electrode for electric double-layer capacitors 10, the sheet-like electrode 12 enters into the reinforcing sheet 14 and ~~thereby~~ and is thereby bonded in a laminated state with exhibition of the anchor effect. --

Please replace the paragraph beginning at page 21, line 9, with the following rewritten paragraph:

-- The basis weight of the reinforcing sheet varies depending ~~to the~~ on the materials and is not particularly limited. Further, the reinforcing sheet desirably has appropriate void spaces because the excellent anchor effect can be obtained. --

Please replace the paragraph beginning at page 21, line 23, with the following rewritten paragraph:

-- In the case ~~that~~ where the material of the reinforcing sheet is a metal such as aluminum, nickel or the like, or carbonaceous fibers such as carbon fiber or the like, the reinforcing sheet has the function and effect as a collector. In this case, the basis weight of the reinforcing sheet is not particularly limited. When the thickness of the reinforcing sheet is thicker than 0.5 mm, the handling properties thereof ~~becomes~~ become inferior, for example, taking-up is difficult due to the rigidity of the metal. --

Please replace the paragraph beginning at page 24, line 12, with the following rewritten paragraph:

-- The electrode for the electric double-layer capacitor according to the present invention can decrease the amount of the ~~finer~~ binder capable of contributing ~~the~~ to the electrode strength in the sheet-like electrode 12 and results in lowering of the internal resistance of the electrode. In the case of using the reinforcing material of thermosetting phenol resins, glass or metals, the ~~product~~ lifetime lifetime of the product is prolonged because the heat treatment can be carried out at a higher temperature and thereby the moisture removal can be carried out completely. Furthermore, when the electric double-layer capacitors 20, 30 as shown in Figs. 3 and 4 described later are prepared using the electrode 10 for electric double-layer capacitors, the electrolyte solution can speedily permeate into the electrode. --

Please replace the paragraph beginning at page 27, line 17, with the following rewritten paragraph:

-- The sheet-like electrode 12A, the collector pair 18A and the lead 38A are electrically connected and the sheet-like electrode 12B, the collector pair 18B and the lead 38B are electrically connected, and the group A and the group B do not leak each leak into each other. --

Please replace the paragraph beginning at page 28, line 1, with the following rewritten paragraph:

-- The electrode for electric double-layer capacitors according to the present invention can be made into a long sized sheet with the unified separator so that the assembling operation is ease easy, the impregnating properties of the electrolyte solution are excellent and the operation properties in preparing the electric double layer double-layer capacitors is improved are improved. --

Please replace the paragraph beginning at page 29, line 12, with the following rewritten paragraph:

-- Namely, using the same amount of the kneadate, a functional sheet having a longer size and more sufficient function and effect can be prepared as compared with conventional these sheets.

Please replace the paragraph beginning at page 32, line 23, with the following rewritten paragraph:

-- Using the reinforcing material-having functional sheets prepared in Examples A1 to A4 and Comparative Examples A1 to A4, the following test were tests were carried out. --

Please replace the paragraph beginning at page 33, line 16, with the following rewritten paragraph:

-- With regard to the function functional sheets prepared in Example A1 and Comparative Example A1, the peeling strength was measured in accordance with the strength of peeling copper foil defined in JISC 6471. --

Please replace the paragraph beginning at page 36, line 18, with the following rewritten paragraph:

-- Two test pieces cut off from the reinforcing material-having electrode film (thickness: 0.65 mm, area: 2 cm²) were placed through a separator (cellulose filter paper

Appl. No. 10/525,319
Amdt. dated 09-28-2006
Reply to Office Action of 09-15-2006
Attorney Docket No. 1217-050589

having a thickness of 0.12 mm) so that the both of the poles (test pieces) were faced facing each other, and an electrolyte solution was fed to prepare a condenser. --

Please replace the paragraph beginning at page 37, line 14, with the following rewritten paragraph:

-- The condenser used herein is prepared in ~~the manner~~ such a manner that two electrode films (thickness: 0.65 mm, area: 2 cm²) were placed through a separator (cellulose filter paper having a thickness of 0.12 mm) so that the both of the poles were faced facing each other, and a propylene carbonate solution of 1 mol/L of tetrafluoroboric acid tetraethyl ammonium was used as an electrolyte. --